

Research Article

(Re)Designing Technical Documentation About COVID-19 with and for Indigenous Communities in Gainesville, Florida, Oaxaca de Juárez, Mexico, and Quetzaltenango, Guatemala

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Abstract—Background: In this article, we document how our team of translators, interpreters, technical communicators, and health justice workers is collaborating to (re)design COVID-19-related technical documentation for and with Indigenous language speakers in Gainesville, FL, USA; Oaxaca de Juárez, Mexico; and Quetzaltenango, Guatemala. **Literature review:** Although (mis)representations of Indigenous communities have been an ongoing issue in and beyond technical communication, the COVID-19 pandemic has brought added attention to how government institutions and other agencies fail to consider the cultural values, languages, and communication practices of Indigenous communities when writing, designing, and sharing technical information. **Research questions:** 1. How can technical communicators work toward social justice in health through collaborative design with Indigenous language speakers? 2. How can technical documentation about COVID-19 be (re)designed alongside members of vulnerable communities to redress oppressive representations while increasing access and usability? **Methodology:** Through interviews and other participatory design activities conducted with Indigenous language speakers in the US, Guatemala, and Mexico, we illustrate how Western approaches to creating technical documentation, particularly in health-related contexts such as the COVID-19 pandemic, put communities at risk by failing to localize health messaging for Indigenous audiences. We then document our work intended to collaboratively design and translate COVID-19-related technical information alongside those Indigenous language speakers to benefit Indigenous language speakers in Gainesville and other parts of North Central Florida. **Results:** Through this discussion, we highlight how technical communicators can collaborate with Indigenous language speakers to create, translate, and share multilingual technical documents that can contribute to social justice efforts by enhancing language access. **Conclusion:** Through collaborations with Indigenous language speakers, translators, and interpreters, social/health justice projects in technical communication can be combined, localized, and adapted to better serve and represent the diversity of people, languages, and cultures that continue to increase in our world.

Index Terms—Community engagement, health justice, Indigenous languages.

It is well-documented that Indigenous communities across the world suffer from “hambre, denutrición crónica, y precaria infraestructura médica” (hunger, chronic malnutrition, and

precarious medical infrastructures) through structural racism at the hands of colonial governments [1]. These structural and long-standing inequities are even more evident during global health crises, such as the COVID-19 pandemic, where colonial governments continuously fail to provide Indigenous language speakers with information and resources in Indigenous languages. As Abigail Castellanos García, Indigenous language activist from the community of San Juan Tabaá, Oaxaca, explains, one of the obligations colonial governments (including Mexico and the US) have during the pandemic is to

generar a través de sus instituciones mecanismos y estrategias para informar a la población sobre la contingencia que el país estaba enfrentando. Sin embargo, los pueblos indígenas recibían la información en español, insuficiente y culturalmente inadecuada, o bien, la información no llegó a diferentes comunidades, convirtiéndose en uno de los sectores más desprotegidos.

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Practitioner Takeaway

- Language Access for Indigenous language speakers requires the acknowledgement of language preservation, education, and revitalization.
 - COVID-19 related messaging geared toward Indigenous language speakers should leverage the power of storytelling in visual and digital contexts.
 - Technical communicators and translators working with Indigenous language speakers should learn about the specific communities and languages that they are working with, including multiple language variants, orientations to health and literacy, and lived experiences.
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develop, through their institutions, mechanisms and strategies for informing the population of the risk that the country is facing. However, Indigenous communities were receiving information in Spanish that was insufficient or culturally inadequate, or furthermore, the information didn't reach certain communities at all, leading Indigenous communities to become one of the most unprotected sectors of the population [2, n.p.].

Indeed, as Ding explains,

combating global epidemics requires careful attention to complicated challenges posed by transnational research and multinational intervention. [3, p. 144]

In the case of the COVID-19 pandemic, as with all health crises, issues of language accessibility are impacting communities at alarming rates, particularly Black, Indigenous, and People of Color who rely on accessible information to attain services and healthcare in already-oppressive systems [2]–[4]. Within this context, coalitions of Indigenous communities and collaborators across the world continue fighting for representation and access to information, developing technical tools and digital and print resources to help mitigate language access issues.

In technical and professional communication scholarship, social-justice-driven scholars argue that technical communicators should continue engaging in social justice praxis by collaborating with communities in the Global South [5]–[7]. For example, researchers, such as Agboka [8] and Dorpenyo [9], provide models for technical communicators to engage in transnational, multilingual research through decolonial perspectives that foster reciprocity and push toward social justice. In this article, through extended conversation, we document how our team of translators, interpreters, technical communicators, and health justice workers is

working together to (re)design COVID-19-related technical documentation for and with Indigenous language speakers in Gainesville, FL, USA; Oaxaca de Juárez, Mexico; and Quetzaltenango, Guatemala.

Echoing social-justice-driven technical communication scholars who advocate for the importance of community collaboration in technical communication, this article presents data and recommendations for engaging in social-justice praxis alongside Indigenous language speakers. As technical communicators continue engaging in transnational research with multilingual communities, issues of language access will continue to be an important aspect of fostering social-justice-driven efforts and collaborations. This research article presents data from a study intended to highlight how both print and digital resources can be designed alongside members of Indigenous communities to redress oppressive visual and digital representations while increasing access and usability.

In the sections that follow, we first provide an overview of recent calls to decolonize technology design [10]–[12]. We highlight how methods such as user-localization, participatory localization, and participatory design can be incorporated into language access initiatives using decolonial methodologies to collaborate with communities in the design of localized multilingual tools and technologies. We then introduce our case study before drawing implications for practicing social justice in technical communication through collaborations with Indigenous language speakers.

LITERATURE REVIEW

Recent scholarship has examined how race and ethnicity affect the ways in which technologies are designed and used [13]–[16]. Scholars working in this area demonstrate that existing technical documents and digital technologies often negatively

impact groups that have already been historically marginalized [16, p. 1]. For example, Mukherjee and Williams [17] investigate the websites of two nonprofit organizations in the Global South, showing how a lack of communication opportunities for vulnerable communities can lead to the othering of these communities in online presentation and representation. Similarly, Pimentel and Gutierrez [18] examine how discursive racism is produced within technological spaces through the internet. They show how YouTube, for instance, continues to make accessible mainstream commercials that racialize Mexicans with little or no disclosure of their content to viewers. These commercials have been banned from airing on television, but their distribution through YouTube continues perpetuating racist ideologies, stereotyping, and promoting “irresponsible mainstream entertainment” [18, p. 89].

Issues of representation, race, and racism continue to exist in both digital and visual media, even in materials that claim to be making information accessible to vulnerable communities. For this reason, scholars argue for a different approach that aims toward the creation of new information technologies that “reflect diverse identities with accuracy and sensitivity” [19, para. 2]. This article considers this approach by exploring collaboration with local communities in the design of localized multilingual technical documents that can promote social justice and human rights, particularly in intercultural contexts. These types of collaborations require a decolonial attunement to participatory design and localization.

Decolonial Methodologies and Participatory

Localization Tuck urges researchers to move away from what she calls “damage-based research,” or “research that operates, even benevolently, from a theory of change that establishes harm or injury in order to achieve reparation” [20, p. 413].

Citing examples of studies in education that sought to increase resources for youth by documenting the “illiteracies” of Indigenous youth and youth of color, she explains that damage-based research is a popular mechanism by which “pain and loss are documented to obtain particular political or material gains” [20, p. 413].

To move away from “damage-based” perspectives to approaching research with Indigenous communities and to embrace social-justice driven methodologies that centralize community

knowledge, technical and professional communicators need to collaborate with Indigenous communities to codesign information and technologies that adequately reflect the needs and desires of these communities [11]. One way to work toward these socially-just approaches is through a decolonial orientation that centralizes community building and community knowledge in technical communication design.

Definitions and applications of decoloniality and decolonial methodologies vary widely across fields. In technical communication specifically, Indigenous scholars bring attention to decolonial methodologies that center “flexibility, reflexivity, humility, and respect” as grounding principles for technical communication research and practice [8, p. 316]. Rather than focusing on models of expediency and efficiency that are at the roots of technical communication’s history and its ties to the industrial revolution [21], as Haas [15] reminds technical communication researchers, doing decolonial work means that we must

support the coexistence of cultures, languages, literacies, memories, histories, places, and spaces—and encourage respectful and reciprocal dialogue between and across them. [15, p. 297]

In describing decolonial methodologies for social justice, Agboka argues that to conduct decolonial research in global contexts, technical communicators need to develop new methods that span beyond the colonial project. As he states,

intercultural professional communication research needs to develop a coherent body of new methodologies with their corresponding methods that are cognizant of local logics, rhetorics, histories, philosophies, and politics. By doing that, our research approaches will answer the call of social justice, which hinges on reflexivity, liberation, and empowerment. [10, p. 298]

Efforts to redress oppressive design structures, especially within research that involves Indigenous communities, can benefit from a participatory approach to localization, which is defined as

the process of adapting a product or service from its source country to the needs and uses of a particular cultural or linguistic market. [22, p. 1]

Participatory localization, as Agboka explains, focuses on a more intuitive and user-sensitive localization approach that is reflective of sociopolitical issues existing at the user’s site [8, p. 42]. This involves putting users in charge of design

so that users and designers coconstruct knowledge [8, p. 43]. When practiced with Indigenous communities, participatory localization centers the local knowledge systems communities, thereby helping to foster justice.

User Localization Another approach frequently used to codesign technologies with communities is user localization. Sun [23] explains that when cross-cultural work is approached through positivist orientations that value efficiency over depth, researchers can (sometimes unintentionally) address only the “tip of the iceberg” in cross-cultural interactions. That is, when cross-cultural design research relies on practical checklists and standardized protocols, researchers can adopt or even reproduce cultural stereotypes [3], [24] instead of localizing technologies and designs successfully across cultures and contexts. Sun [23] proposes “user-localization” as an approach to cross-cultural technology design that values local community knowledge and emphasizes the role of local expertise in localization practices.

In the study of biometric technology use in Ghana’s elections, Dorpenyo uses a decolonial approach to user localization to highlight how “users’ ways of knowing have been marginalized and colonized by discourses that favor designers” [9, p. 30].

In turn, in working toward social justice, technical communicators need to pay closer attention to how users localize tools and technologies for their own goals and purposes in their own contexts. This decolonial approach to user localization research can thus help technical communicators to move away more effectively from damage-based approaches that present non-White/Western ways of knowing, innovating, and informing as deficient. Instead, decolonial approaches to localization, including user localization as proposed by Sun [23] and Dorpenyo [9] and participatory localization as advanced by Agboka [10], can help technical communicators work toward social justice, specifically by countering the field’s dominant narratives of efficiency and technological expertise [25].

RESEARCH QUESTIONS

As discussed in the Literature Review section, several scholars in technical communication have identified the importance of embracing and developing decolonial approaches to participatory research in technology design. These scholars emphasize the fact that more research is needed in

the field to continue pushing social justice methodologies forward. This special issue of IEEE TRANSACTIONS ON PROFESSIONAL COMMUNICATION is a step in developing strategies and best practices not only for theorizing but also for practicing social justice methodologies in technical communication.

In this article, we thus seek to highlight strategies for designing multilingual resources with, and not just for, Indigenous communities. The primary research questions guiding this inquiry are the following.

RQ1. How can technical communicators work toward social justice through collaborative design with Indigenous language speakers?

RQ2. How can technical documentation about COVID-19 be (re)designed alongside members of vulnerable communities to redress oppressive representations while increasing access and usability?

METHODOLOGY

To answer these questions, we present findings from a study (IRB#202003301) that examines how COVID-19 resources and tips designed by colonial governments can exclude and marginalize Indigenous language speakers. Through interviews and other participatory design activities conducted with Indigenous language speakers in the US, Guatemala, and Mexico, we illustrate how Western approaches to creating technical documentation, particularly in health-related contexts, such as the COVID-19 pandemic, put communities at risk by failing to localize health messaging for non-Western audiences.

We then document our collaborative work intended to collaboratively design and translate COVID-19-related technical information alongside Indigenous language speakers in Mexico, Guatemala, and the US to benefit Indigenous language speakers in North Central Florida. Through this discussion, we highlight how technical communicators can collaborate with Indigenous language speakers to create, translate, and share multilingual technical documents that can contribute to social and health justice efforts by enhancing language access. In the sections that follow, we first provide a brief overview of the case study, methods of analysis, and findings before sharing the overall recommendations for enacting social justice methodologies in technical communication.

Designing COVID Treatment and Prevention Tools for and with Indigenous Language Speakers in North Central Florida

Although (mis)representation of Indigenous communities has been an ongoing issue in and beyond technical communication [26], the COVID-19 pandemic has brought added attention to how government institutions and other agencies fail to consider the cultural values, languages, and communication practices of Indigenous communities when writing, designing, and sharing technical information. Institutions are also dismissive of Indigenous communities' presence, identifying Indigenous language speakers from Latin America as merely "Hispanic" or "Latino." This is particularly the case in rural communities, such as North Central Florida, where providing adequate language access is only beginning to be recognized, accepted, and addressed.

Florida is one of the top 10 hosts of migrant seasonal farmworkers, along with Arkansas, California, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, Texas, and Washington [27]. Because a majority of migrant seasonal farmworkers in Florida travel to rural parts of the state from Latin American countries (e.g., Mexico, Guatemala), many US agencies in Florida assume that these individuals speak Spanish. However, many migrant seasonal farmworkers in Florida speak Indigenous languages from their home countries, and the lack of language services in Indigenous languages within Florida becomes a limitation for Indigenous language speakers seeking to access healthcare and other essential services [27].

During the ongoing COVID-19 pandemic, Laura, a technical communication and translation researcher and a professor, has been working in Gainesville, FL, USA, to codevelop (along with Robin, Vianna, and Erika) materials related to COVID-19 treatment and prevention, specifically for Indigenous language speakers. Robin is the Director of Programming for the Rural Women's Health Project (RWHP), the only health justice organization in North Central Florida.

During the COVID-19 pandemic, the RWHP is collaborating with Laura to translate foto- and radionovelas that present COVID-19 treatment and prevention information in short bite-sized messaging that has been accessible to Spanish speakers in North Central Florida. The RWHP has been producing fotonovelas for over 30 years. The fotonovela uses communal testimony/storytelling

to present health messages, document the work of communities, and unify them both to improve individual and community well-being and to document community culture and vision. Fotonovelas use minimal text, popular language, and visuals that include photographs of local community members, who are the actors, to allow messages to be culturally localized and read easily across literacy levels and languages [28].

As the COVID-19 pandemic developed, it became evident that government organizations, both in the US and abroad, were not adequately tailoring health messaging to multilingual communities and, in particular, speakers of Indigenous languages. In North Central Florida, where Laura and Robin are located, many multilingual individuals are agricultural workers who have consistently been working throughout the pandemic, "risking their lives to keep grocery shelves stocked" [28]. Many Indigenous language speakers in Gainesville speak variants of Mixteco and Zapoteco, having roots in Oaxaca de Juarez, Mexico, as well as Mayan languages, Mam, K'iche, and Q'anjob'al, having roots in various parts of Guatemala. For this reason, as Laura and Robin began collaborating on the development of fotonovelas and radionovelas for Indigenous language speakers, they connected with Vianna and Erika to facilitate translations and localization of the messages produced by the RWHP.

Vianna is a teacher, translator, and interpreter of Maya K'iche, an Indigenous language from Guatemala. Vianna is originally from the municipality of San Francisco la Unión, Quetzaltenango, Guatemala. She earned her master's degree in primary education at multiple levels and her bachelor's degree in sociolinguistics from the Universidad Mariano Gálvez de Guatemala. In 2012, she started teaching her maternal language to children, youth, and adults as a volunteer at the Museum Ixkik' del Traje Maya in the departmental capital of Quetzaltenango. In 2018, she formed a group of activist youth who volunteered to promote and revitalize Mayan languages with support from la Escuela de la Felicidad. She currently works as an Instructor of Languages in the Linguistic Community K'iche at the Academia de Lenguas Mayas de Guatemala. Vianna connected with Laura through social media during the pandemic as they discussed possible collaborations.

Erika is a translator and interpreter of Chinanteco, a variant from the Municipality of San Pedro Yolo.

Chinanteco is an Indigenous language spoken by communities in Oaxaca de Juarez, Mexico, where Erika lives and works. Erika connected with Laura during a conference event on Indigenous languages in Oaxaca in the summer of 2019. In 2020, Erika and Laura reconnected as they began collaborating with Robin and Vianna on the development of localized materials related to COVID-19 for Indigenous language speakers in North Central Florida.

Method Since the summer of 2020 and into 2022, the four of us have been collaborating to design materials for Indigenous language speakers in North Central Florida using the RWHP's testimonial media method. Rather than conducting a formal study of the process from an academic perspective, we have been tracing our collaborative design process through an iterative approach, where we research existing materials, design our own versions of the materials, and then translate, localize, and share the materials with members of the North Central Florida community. Our process is ongoing and recursive and includes the following steps.

1. Conducting a landscape analysis of existing COVID-19-related materials produced for and by Indigenous language speakers. A total of 42 infographics, videos, and flyers from open-access websites in the US, Mexico, and Guatemala were selected through convenience sampling and analyzed. All materials were compiled into a Google Docs document for collaborative analysis and distribution. Our goal in this initial step was to learn how Indigenous language speakers localized and translated common COVID-19 treatment and prevention protocols. These materials were not formally coded but were instead used to help our research team decide how to approach our own designs for Indigenous language speakers in North Central Florida.
2. Interviewing Indigenous language translators and interpreters in the US, Mexico, and Guatemala to learn more about the process of designing, translating, and sharing technical documentation about COVID-19. Laura conducted interviews with four translators and interpreters over Zoom and WhatsApp. Interviews were not systematically coded but were audio-recorded, heard, and discussed to see how interview data correlated or differed from the experiences of Vianna and Erika in their own work as translators and interpreters. The following questions were asked during these interviews.

- Can you tell us about the materials you are designing for COVID-19 for Indigenous language speakers?
 - What adaptations or localizations do you make when localizing and translating COVID-19-related information for Indigenous language speakers?
 - What should agencies and organizations that seek to provide COVID-19 information for Indigenous language speakers keep in mind?
 - What strategies do you use to ensure that the information you create is effective in reaching Indigenous language speakers?
3. Applying lessons from the interviews and landscape analysis to the RWHP's testimonial media, fotonovelas, and other print and audio materials about COVID-19. We worked collaboratively with Vianna and Erika to solicit feedback as the materials were translated into Indigenous languages, including Zapoteco, Mixteco, Mam, K'iche, and Q'anjob'al.
 4. Soliciting feedback on materials from community members and other agencies serving Indigenous language speakers across the US. This feedback was collected through WhatsApp chat conversations with three health promoters employed by the RWHP who speak Indigenous languages.
 5. Applying feedback and suggestions to future designs and revising existing designs accordingly.

It is important to note that information related to COVID-19 is constantly changing, as are the policies and procedures for care and prevention at local, state, and national levels. This evolution is especially the case with the rise of vaccine availability in the US and the continued misinformation being shared by various individuals and groups. Thus, the iterative and recursive design process that we employed in this project was useful in seeking to design materials that were localized, translated, and delivered in a timely manner.

As we designed, reviewed, translated, localized, and shared each of the materials created for this project, we reflected on the effectiveness of the materials in reaching Indigenous language speakers, made connections with other agencies serving these communities, kept notes of the feedback received, and made improvements in each new material. Although this was not the systematic analysis of materials that is common in much technical communication research, this iterative approach to design allowed us the flexibility to continue making consistent improvements to the

work that we were producing, rather than waiting until the end of the project to review and revise the material. This iterative and recursive method is critical to working toward health justice during such an explosive reality as a pandemic.

In the following sections, we present recommendations for designing COVID-19-related materials for and with Indigenous language speakers. To make these recommendations, we draw on our collective collaborative experiences on interview data that we shared and analyzed together and on the group's collective experiences working with Indigenous communities either as members of these communities or as collaborators interested in supporting Indigenous language rights. Since our team and the authors of this article include Indigenous language speakers, we privilege the experiences of Indigenous language speakers and translators in this article, presenting recommendations that were developed not through a scientific study of Indigenous language praxis but rather through collaboration with Indigenous communities.

In the sections that follow, we make three recommendations for technical communicators working on designing and sharing technical information in Indigenous languages.

1. Appealing to the community over individual values
2. Acknowledging the importance of language preservation, education, and revitalization
3. Leveraging the power of communal storytelling and testimonial media

As we introduce each recommendation, we include quotes from our interviews, examples of the material we created, and information from the collaborative reflections we developed through our revision and redesign processes.

RESULTS

Appealing to Community Over Individual Values

Following our initial discussions related to translating and designing COVID-19-related information for Indigenous language translators, Laura interviewed Indigenous language translators who have been actively designing COVID-19-related information in Indigenous languages throughout the pandemic. The goal of these initial interviews was to learn about current strategies being employed by Indigenous-led organizations to develop effective COVID-19-related materials.

During these interviews, Laura asked interview participants Anna, Estefania, Emilia, and Graciela (all pseudonyms) to explain how they localized information for Indigenous language speakers and how organizations abroad, in the US specifically, could contribute to and expand these efforts.

During her interview, Estefania, a visual designer and an Indigenous language translator living and working in Oaxaca de Juarez, Mexico, explained that creating COVID-19-related information for Indigenous language speakers requires much more than just translating government-sanctioned information. She explained,

The Mexican government has produced a lot of information in Spanish for the community here, but for Indigenous communities, it's not enough to just translate this information. As we translated information related to COVID-19, we also had to make it more relevant for our communities.

For example, Estefania explained that much of the messaging related to COVID-19 in Mexico, as in the US, focused on individual fears related to getting sick. Estefania explained, "The messaging from the Mexican government tells people to 'protect yourself' or to not risk your own health."

Although these messages can be effective to some extent in certain contexts, Estefania also clarified that

Indigenous communities care more about our community than we do about ourselves, so if we want people to stay home, if we want them to skip going to work, we can't tell them to do it just for themselves; we have to tell them to do it for their communities.

Thus, when Estefania designed COVID-19 materials in Indigenous languages, she developed the hashtags #quedateencasa #portucomunidad (#stayhome #foryourcommunity). Although #quedateencasa has been used worldwide in various iterations, Estefania's decision to pair it with #portucomunidad was a localization strategy that made the messaging more attuned to Indigenous values and, therefore, more effective with Indigenous language speakers.

Fig. 1 is a poster designed by the Centro Profesional Indígena de Asesoría, Defensa, y Traducción (CEPIADET), an NGO in Oaxaca that advocates for Indigenous language rights in Mexico and across the world [2]. This poster was designed



Fig. 1. CEPIADET covid poster.

specifically for Indigenous communities in Mexico. The poster was translated into 40 Indigenous languages spoken in Mexico, reading in English,

Following the prevention methods for COVID-19 means taking care of and preserving the diversity of our communities. Let's take care of the people who are [most] vulnerable to this disease: children, pregnant women, older people, people who are obese, and people who have an illness. It's everyone's responsibility to take care of one another!

This poster continues placing emphasis on community rather than individualism, specifically by asking people directly to preserve their community and culture by taking care of each other.

During our interview, Anna, an interpreter and translator who works for CEPIADET, also pointed out that this poster uses the hashtag #SílaVida

(#YestoLife) as a way to align with Indigenous epistemologies that value life while not fearing death. As Anna explained

Contrary to Western ideas, our Indigenous communities know that our lives don't end at death, so telling people to not get sick because they will die, like the Mexican government is telling us, doesn't work as well as telling people to instead say "yes!" to life. The focus here is on having a better life, in whatever form, rather than being guided by a fear of death.

It is important to note that the visuals used on this poster, depicting a young girl combing her grandmother's hair while both wear masks, echoes the emphasis on intergenerational care that Indigenous communities deem as central to cultural preservation. Thus, protecting each other from COVID-19 is not an individual issue but rather a matter of community, cultural, and linguistic preservation.

In her own work with Indigenous communities in Mexico, Erika also incorporates this communal approach to health messaging. For example, separate from the work we did together for this project, Erika worked with other agencies to translate materials for the COVID-19-related campaign in Mexico titled "si te cuidas tú, nos cuidamos todos!" ("if you take care of yourself, we can take care of each other!"). Rather than focusing solely on the individual, the emphasis of this messaging is on communal and intergenerational care. The idea is that rather than emphasizing fear of death or even an individual risk assessment, Indigenous communities would be better served by messaging that resonates with community-driven values and ideas of cultural preservation through intergenerational care.

As Laura and Robin learned from Indigenous language translators like Erika and the interview participants, we wanted to find a way to incorporate this communal approach to health in the development of COVID-19-related materials for Indigenous language speakers in North Central Florida. For this reason, the RWHP developed materials with the tagline "¡Tenemos que cuidarnos entre todos!" ("We all need to take care of each other!"). This tagline was included in visual documents as well as in audio clips that were designed and translated in Spanish, Mixteco, Zapoteco, Mam, K'iche, and Q'anjob'al. Although each of these Indigenous languages is vastly different, we found it useful to develop materials

that centered community versus individual care, centralizing Indigenous approaches to health instead of simply translating materials that had already been developed for Western audiences. As evidenced by these brief examples, designing technical communication for Indigenous language speakers requires added attunement to Indigenous values, including those that highlight community over individuals.

Acknowledging the Importance of Language Preservation, Education, and Revitalization In addition to interviewing Indigenous language translators from Mexico, Laura also interviewed Raúl, an Indigenous language speaker living in Central Florida. Raúl is from Oaxaca de Juárez, Mexico, and speaks a variant of Mixteco colloquially referred to as “Mixteco alto” (“high Mixteco”) because of the region of the city where this variant is spoken. However, it is important to note that there are over 53 unique variants of Mixteco. During his interview, Raúl mentioned that when designing COVID-19-related information for Indigenous language speakers in North Central Florida, technical communicators

should focus on visuals, not writing. Having the written translations of Mixteco is not really important, because Mixteco is an oral language, and most people will not read Mixteco.

During this interview, Raúl also recommended that technical communicators produce audio recordings of information in Mixteco, and he shared multiple examples of audios and videos that he had created for his Mixteco-speaking community in Florida.

In a separate discussion, Emilia, another Mixteco translator living in Oaxaca, also mentioned that although many Mixteco speakers do not read Mixteco, “It’s still important to provide written translations in Mixteco, as a way to show that our written language exists.” As Emilia mentioned, although many Indigenous languages are mainly oral, Indigenous activists have been developing and sustaining written alphabets of Indigenous languages, including Mixteco, as a way to “create a written record of the language that can then be recognized by the government.” She then added that

even though many people don’t read or write in their Indigenous languages, I think it’s important to make these writing systems visible, make them a part of the cultural record.

Members of CEPIADET agreed with Raúl that audio messaging is really effective for Mixteco speakers, and through follow-up conversations, Raúl also agreed with CEPIADET that the preservation of Indigenous languages could be supported through the visualization of the language in writing. Through these conversations, Laura recommended to Robin and RWHP that they include both audio and written messaging related to COVID when targeting Mixteco speakers. Robin and the RWHP translated the flyer depicted in Fig. 2, which is accompanied by an audio file that reads all of the flyer content in Mixteco.

The flyer depicted in Fig. 2 includes multiple visuals that correlate with the technical information presented. The design of the COVID-19 Prevention strategies in Mixteco, with images and representation of family, was influenced by translation teams and community feedback. In addition to the visuals, the written content is provided in Mixteco. This flyer, along with several others that were later designed and translated, was shared through social media and through pre-established WhatsApp groups via text messages moderated by health promoters who work for the RWHP. The flyers were shared alongside the audio clip, thus providing multiple avenues for dissemination that leverage written, aural, and visual modalities.

Through conversations with Indigenous language speakers in both the US (Gainesville) and Mexico (Oaxaca), the technical documentation shared with the community was at once both local and global and served the purpose of informing communities about the COVID-19 vaccine while also contributing to a broader social justice mission related to language presentation. Collaboration with Indigenous language speakers made it possible for technical communicators involved in this project (including Laura and Robin) to codesign culturally relevant and sustaining materials that stem beyond Western ideologies related to language and culture.

Why include both written and audio translations? Vianna explains that many Indigenous language translators do not consider their work to be simply translation. Instead, language preservation, translation, and education are intricately connected for many Indigenous language speakers. This sentiment was also echoed by the three health promoters in Gainesville who provided feedback on the translated flyers. In a WhatsApp conversation, one health promoter explained that for Indigenous



Fig. 2. COVID prevention flyer created by the RWHP in Gainesville, Florida, with community input.

communities living in Gainesville, receiving health messages in their Indigenous languages is very helpful because “It’s important to give people information in their native language.”

However, this health promoter also pointed out that many Indigenous language speakers in the US are “trying to learn to read and write Spanish better,” especially because migrant farmworkers, for example, work in the community with Spanish speakers. Although the primary goal of these materials is to provide health information, technical documentation designed in a community with Indigenous language speakers can also foster broader language justice efforts. Thus, it is important for Indigenous language speakers to have multiple ways to access information in multiple languages and modalities, including written, visual, and audio.

Leveraging the Power of Storytelling in Visual and Digital Contexts One of the greatest advantages of the RWHP’s fotonovela method is the power of communal storytelling to communicate important health-related information. The basis of the stories comes directly from the community members and is then crafted and returned to the community for input. It is well-documented that storytelling is an impactful method for sharing health-related information with community members, particularly when stories include visual elements [3]. In the work of creating technical documentation related to COVID-19 in Indigenous languages, the RWHP and all the authors of this article incorporated storytelling into health messaging, aiming to localize these stories for and with Indigenous language speakers.

For example, initially, flyers, such as the one depicted in Fig. 2, were accompanied by a sound

file, in which a translator read the information on the flyer in Spanish as well as variants of Mam, K'iche, Q'anjob'al, Mixteco, and Zapoteco. However, after the initial design and compilation of these audio files, Robin decided to convert the written flyers and the audio into "radionovelas," where instead of presenting someone reading the information in the flyer, the RWHP team worked together to write and translate short bite-sized stories or novelas that incorporated multiple characters and voices. These radionovela tools are intended to impact and shift behaviors or help people to understand behaviors that they identify as being beneficial to them.

For example, a flyer originally titled "La Vacuna del COVID-19 es la mejor manera de protegerlo a usted y sus seres queridos contra el COVID" (The COVID-19 vaccine is the best way to protect you and your loved ones against COVID-19) was transformed into a 3-minute novela titled "El Pastor y Griselda la Dudosas" (Griselda the Doubter and the Pastor). This short novela includes a conversation between Griselda, a woman who doubts the effectiveness of the vaccine, and her Pastor, who assures Griselda that the vaccine is safe. Through a short dialogue, Griselda and the Pastor provide important information about the vaccine, possible vaccine side effects, and the effectiveness of the vaccine in protecting people against the virus. Table I includes the script for the novela in K'iche and Spanish.

The radionovela presented in Table I was translated by Erika and Vianna as well as other translators in Guatemala and Mexico and was then shared throughout and beyond North Central Florida through social media, on the RWHP website, and through Community Health Workers (Comunicadores de Salud) via WhatsApp. As part of their ongoing language justice work, the RWHP has established WhatsApp groups to share information to multilingual community members through community health workers who moderate and build the groups.

In discussing the conversion of the flyers and initial audios into radionovelas, Erika explained that storytelling could be a way to connect with Indigenous language speakers who value stories and human connection as part of health discourse. Furthermore, Erika explained that the radionovelas provide "another way for people to hear and interact with their language." Both Erika and Vianna explain that some Indigenous language speakers in Florida and beyond may understand

Spanish and could perhaps understand the initial audios in the Spanish language. However, both agree that hearing the radionovelas in Indigenous languages is likely to resonate with and help Indigenous language speakers in North Central Florida to feel seen and to know that someone is thinking of them when designing technical documentation related to COVID-19.

This perspective was correlated by a health promoter in Gainesville, who explained through a WhatsApp chat conversation that

it's great to translate the flyers and audios into Indigenous languages. I know that when people get information in their languages, they feel included and they pay more attention. When people get a message in their Indigenous language, they also become curious and want to know more.

The whole point of communal stories, such as the radionovelas, is for people to identify with the characters and to relate to the stories. This is particularly important to motivate taking action and making health-related decisions. As Erika explained during a recent conversation, agencies and organizations may reach the *minds* of Indigenous language speakers through technical information in Spanish, but representing this information in a story format in Indigenous language may help to reach these communities through the *heart*. This type of representation and connection is what can push technical communicators beyond merely providing language accessibility and toward enacting social justice in technical contexts.

DISCUSSION

The data we present in this article provide a localized project related to COVID-19. In line with the theme of this special issue, in this section, we present specific recommendations for technical communicators working to enact social justice with Indigenous communities.

Recommendation 1: Moving Beyond Translation in Global Technical Communication

Increasingly, technical communication researchers and practitioners emphasize the importance of engaging in global research with transnational communities through social justice frameworks that value community knowledge and languages [6], [7]. Some of this work highlights the importance of translation in global technical communication

TABLE I
AUDIO SCRIPT FOR GISELDA THE DOUBTER AND PASTOR RODRIGUEZ

Speaker	Dialogue in Spanish and K'iche
G (mujer)	¡Buenos días Pastor Rodríguez! Se ve muy contento hoy. ¡Xsaqarik K'amal b'e! kamik sib'alaj kkikot la!
PR (hombre)	Buenos días Griselda. Tiene razón. Recibí la vacuna del COVID. ¡Que alivio! Así me mantengo saludable y ayudo a que mi comunidad esté saludable también. Xsaqarik al Griselda. Qas tzij chi awech. kinki'kotik xa rumal xinkunax che le COVID, ¡Kjoror ri nuk'u'x! Rumal man kinriq ta chik, le yab'il xuquje' kinto' ri nukomon rech man keyawaj ta ri winaq.
G	Oh no, pero Pastor ...¿no sentía temor de inyectarse el virus vivo en su cuerpo? Ay tatit, k'amal b'e ...¿La man xxi'j ta ib' la are chi' xt'is b'i ri jun k'asal chikop pa ri ch'akul la?.
PR	¡No! Griselda. ¡Eso no es cierto!. Ninguna de las vacunas de COVID contienen el virus vivo. ¡Tristemente es solo un rumor!. ¡Maj! al Griselda. ¡Man qatzij ta la', le le'!. Man k'o ta jun t'isb'aq rech le COVID k'o jun k'asal uchikopil chi upam. ¡Xaq kmoloj tzij la' le winaq!.
G	Bueno, también he escuchado que la vacuna Xuquje' in tom chi ri t'isb'aq
PR	(le interrumpe y le responde) Griselda, tenemos que dejar de estar compartiendo mitos y debemos de empezar a pensar como las vacunas pueden ayudar a proteger a la gente a tu alrededor. ¿Sabías que la vacuna es gratis? Al Griselda, man kqachomaj ta la' ri moloj tzij kb'an le winaq chi rij ri t'isb'aq, are utz la' kqachomaj ri utzilal kuya ri kunab'al chi kech ri qawinaq. ¿La aweta'm chi ri t'isb'aq xaq sipatalik?
G	Pastor, estoy escuchando lo que dice sobre la vacuna, pero honestamente todavía tengo dudas. K'amal b'e, kinchomaj rij ri tajin kb'ij la chi rij ri t'isb'aq, k'o ne' na ri man qas ta k'o pa saq chi nuwach.
PR	Te explico, la vacuna del COVID-19 enseña a nuestro cuerpo a reconocer y luchar contra el virus. Si alguien es expuesto al virus COVI-19, la vacuna ayuda a evitar enfermarse o acabar teniendo que hospitalizarse. Kintzijoq chi awech, le t'isb'aq rech le COVID 19 kuk'ut chi uwach ri qab'aqilal kuna' xuquje' kto' rib' pa le uq'ab' le uchikopil. We k'o jachin kuriq ri yab'il ri t'isb'aq kuto' chi man kyawaj taj, kuto' chi man keyo'q ta kan pa jun ja kunanib'al.
G	¿Dice usted que enseña a mi cuerpo a luchar contra el virus? ¿Lal kb'ij chi kuk'ut che ri nuch'akul kuto' rib' chi uwach ri uchikopila?
PR	¡Sí! Dependiendo de cual vacuna usan, necesitarás una o dos dosis. Y al pasar dos semanas de vacunarte, ya se considera que estas protegida contra el virus. ¡Je'! kjawataj la' jun on keb' mul katkunaxik, jalan la' le t'isb'aq, are chi' kok'ow jo'lajuj q'ij kojtajnaq chi ri t'isb'aq, k'o chi ri upatam chi awech pa le ab'aqilal
G	Pero es que he escuchado que la gente que dicen que después de la vacuna se sienten cansados o les da fiebre. También dicen que les duele mucho el brazo donde la pusieron. Nema in tom chi ri winaq kkib'ij are chi kkoj ri t'isb'aq kuya tuqa'rinem xuquje' q'aq'. Xuquje' kkib'ij chi k'ax kan ri kiq'ab' jawi xkoj wi.
PR	Griselda, estos síntomas son normales y temporeros después de recibir cualquier vacuna. Eso significa que tu cuerpo está creando las defensas que necesita. De todos modos, la enfermera me dijo que, si experimentaba cualquier síntoma leve solo tenía que tomar Tylenol o Ibuprofeno. Al Griselda, je' ri' la' le k'axk'olil kuya'o are chi kkojtaj jun t'isb'aq nema man knajtin ta la'. Are la' kuk'utisaj chi tajin kuya' uchuq'ab'il ri ab'aqilal, Xub'ij ri tob'anel ajkun chuwe we k'o ne' uq'oxomal utz kintij Tylenol on Ibuprofeno chi rij.
G	Cuénteme, ¿y usted sufrió mucho después de recibir la vacuna? Utz kb'ij lal chuwe ¿Lal k'ax xriqo are chi' xkoj la le t'isb'aq'?
PR	(ríe suavemente) ¿Sufrir? En mi caso en particular, no. Estuve un poco cansado. Me acosté temprano ese día y ya puedes ver, me siento muy bien. (ríe suavemente) ¿Chi k'ax xinriqo? ri in man k'o ta k'axk'olil xuya chi wech. Xaq xina' chi in kosinaq jub'iq', nema xinq'oyi' chanim are chi' xinwa'lajik in utz chik.
G	(con un poco de sospecha) Entonces, porque tiene mascarilla puesta si ya fue vacunado. (con un poco de sospecha) Jas che kojón na la ri ch'uqb'al chi, we' xkojtaj le t'isb'aq che la.
PR	Bueno, dicen que toma dos semanas para que la vacuna sea efectiva. ¿Sabes? Es la responsabilidad de todos de preocuparnos por los demás – hasta que todos estén vacunados. Yo continuo siguiendo las recomendaciones de usar mascarilla, mantener distancia entre personas y lavar mis manos frecuentemente. Kkib'ij chi pa jo'lajuj q'ij ktob'an la' le t'isb'aq are chi' kkojtaj awumal. ¿La aweta'm? Chi qij wa', kqaj we qok il che rilik chi konojel ri winaq kkikunaj kib'. In je ri' kinya na q'ij che le b'im kumal ri nimaq taq k'amal b'e, kinkoj na ri ch'uqb'al chi'aj, man kink'oji' ta chi kinaqaj ri winaq xuquje' amaq'el kinch'ajch'ob'ej na le nuq'ab'.
G	Hmm... Pastor Rodríguez entonces ¿usted cree que tal vez yo me deba vacunar? K'amal b'e Rodríguez ¿Lal kchomaj chi in kajawatajik kinkunaj wib'?
PR	Griselda, ¡Esta es la mejor forma de protegerte a ti, tus seres queridos y a tu comunidad contra el COVID! ¡Tenemos que cuidarnos entre todos! Al Griselda, ¡Are ne' qas utz la', rech kachajij awib' chi uwach ri COVID, ri awalaxik xuquje' konojel ri winaq pa le atinamit. ¡Rajawaxik kqachajij qib' uj konojel!
PR	¡Cuidémonos entre todos! Un mensaje de Proyecto Salud. ¡Chib'il qib' kqachajij qib'! are wa jun upixab' le wokaj utz k'aslem.

research, particularly as technical communicators collaborate with translators and interpreters to conduct research in global contexts [29].

In this project, we learned that translation is just one aspect of information access, particularly when working with Indigenous language speakers. To merely translate COVID-19-related information into Indigenous languages might maintain the Western-based perspectives on health, community, and individualism that counter Indigenous approaches to health based on community values [2]. Although translation is one aspect of language access and translation work can be one piece of a social justice technical communication project, making information accessible for Indigenous language speakers can benefit from participatory localization and collaborative design, as evidenced by the multiple iterations of technical documentation presented in this project.

In global technical communication research and in the design of technical documentation specifically, translation is often left until the end of a project and is frequently outsourced to translation companies that are not connected to the local community who will be using the translated information. As a result, translations can miss cultural elements and values embedded into technical documentation and can hinder rather than facilitate access while also perpetuating stereotypes. These cultural elements and values are particularly critical in the area of health, where the goal is to communicate and shift health-related behaviors. As technical communication researchers continue expanding their work into global contexts, a social justice approach to translation is required, where technical communicators work alongside technical translators and designers to adapt information throughout the design and sharing process, rather than simply at the end.

Recommendation 2: Developing Multiple Ways to Communicate Information The materials that we developed for this project included visual, audio, and written media. In our conversations with Indigenous language speakers, we learned that these modalities for conveying health-related information work well in collaboration rather than isolation. That is, rather than assuming that vulnerable communities, such as Indigenous language speakers, do not have the literacy capacity to read information and, thus, do not need written translations, social-justice-driven technical documentation can provide multiple access points that serve multiple purposes.

For example, although not every Indigenous language speaker might read the information written in his or her language on a flyer and might instead rely mostly on the audio version, the presence of the written translation also supports the language preservation efforts of Indigenous communities, helping Indigenous language speakers to feel like their viewpoints and perspectives are being considered and included. As Vianna explained in describing her work with Indigenous language translation,

The work that we do as translators of Indigenous languages is not just for the people accessing information, but also for the benefit of the languages themselves.

Thus, social-justice-driven technical communicators can collaboratively develop, alongside Indigenous communities, methods not only for providing access to information but also for fostering community well-being using technical documentation to contribute to activist efforts (i.e., Indigenous language preservation). As technical communicators collaborate with members of vulnerable communities, including Indigenous communities, we should further consider how we can support the efforts of these communities as we do our work, rather than merely focusing on our own research agendas.

Furthermore, as technical communicators work with Indigenous communities and other vulnerable communities to design technical documentation through multiple modalities, it is also important to incorporate visuals and other media that accurately represent the communities who are the primary audience or users of the design. For example, in the flyer depicted in Fig. 1, the young child and the grandmother are wearing traditional clothing (known as Huipiles) with patterns that correlate to their specific community. Different Indigenous communities have different weaving patterns that represent their communities and cultures, and it is important to pay attention to these nuances in designing technical documentation. The White/Western gaze may overlook these details and portray any Indigenous person on a flyer in any Indigenous language, but for the Indigenous language speakers being targeted as primary audiences for this documentation, specificity in visual design is very important.

Thus, if technical communicators want to enact social justice in their design, it is important to collaborate with communities, such as Indigenous

communities, who actually have the cultural and linguistic expertise needed to develop localized materials. One way in which technical communicators can work toward social justice through collaborative design with Indigenous communities is to seek feedback and conduct research about the importance and intricacies of visual communication in non-Western contexts to avoid developing technical documentation that centralizes a White/Western gaze in the analysis and engagement with non-Western communities.

Recommendation 3: Make Space for Diversity Within Diversity

For many years now, intercultural technical communication researchers have pointed to the fact that culture is complex and that designing for intercultural contexts requires attunement to varying degrees of diversity, not only across but also within individual contexts. For example, the label “Indigenous communities” has been contested because Indigenous communities can mean different things to different people, particularly in transnational contexts. Thus, there is no simple protocol or heuristic for effectively designing with “Indigenous communities.” Instead, social justice technical communication and design require an openness to the complexity and attunement to multiple layers of difference.

In our collaboration, it was important for technical communicators to note that each Indigenous language has multiple variants based on the physical location of the community in which a language is spoken. For example, Indigenous language speakers in Mexico speak over 68 different Indigenous languages. Within these languages, there are over 364 language variants. In Guatemala, there are 22 recognized Mayan Indigenous languages and hundreds of variants, and it is likely that there are many more languages and variants that are not yet recognized by the colonial state.

The physically closer that two communities are to each other, the closer their language variants may be. This also means that for communities that live far away from each other, speaking the same language may still mean that multiple variants are spoken, and thus that different translation and localization processes must be followed. As Vianna explained, the different language variants themselves are, in a sense, a form of localization that represents each community’s connections between land and language. For example,

Q’anjob’al is a language spoken in various parts of Guatemala, including some municipalities in Santa Cruz Barillas and Huehuetenango. Each community speaks a different variant of the language, representative of their land, specific cultural values, and communal relationships. Without this attunement to language variants and proximity, messages might be misunderstood or not understood at all.

With so much variety and so many differences in regions, languages, and variants, it should go without saying that there are multiple different perspectives about the best strategies for writing, designing, and localizing technical information for Indigenous communities. For example, at first, Raúl, the participant living in Central Florida, explained that he thought translations in Indigenous languages should be limited to audio since many Indigenous language speakers do not write in their language. However, the Indigenous language speakers living in Mexico and Guatemala argued that it is nevertheless important to provide written translations of information in Indigenous languages, not only to provide information to Indigenous language speakers but also to contribute to the written cultural record of these languages to preserve them. Furthermore, the health promoters living in Gainesville commented that distributing information in Indigenous languages can increase engagement from Indigenous language speakers, but also that Indigenous language speakers living in the US may benefit from seeing some content in Spanish, especially since some Indigenous language speakers in the US may also be working on strengthening their Spanish speaking and reading skills.

When technical communicators partner with Indigenous communities to design information, enacting social justice means making space for multiple perspectives, dialogic conversations, and iterative design processes that, although they may take longer, will ultimately lead to more effective and socially-just designs. Although many technical communication researchers emphasize the importance of localization, our work with Indigenous language translation and localization highlights the importance of localizing information not just across but also *within* communities. Even within a single “language,” such as Mam, there are multiple variants, multiple perspectives, multiple environmental factors at play, and multiple different voices that need to be recognized for a design to be successful and effective.

CONCLUSION

The project discussed in this article provides some insights into actionable strategies that technical communicators can practice to continue expanding the social justice turn in the field. Although each community with whom technical communicators may collaborate may be completely different, looking at data across communities and contexts can help technical communicators to develop collaborative design strategies that are at once localized to specific communities and transferable across contexts. As technical communicators continue collaborating with communities of color to design and share technical information, particularly in times of health crisis and global need, it will be important to continue developing, researching, and sharing best practices for fostering social justice and avoiding harm or fetishization.

Limitations Although the recommendations provided in this article can help technical communicators continue fostering social justice in their work, it is also important to acknowledge that this study has several limitations. First, although highly localized projects, such as those presented here, focus on depth rather than breadth in terms of research subjects, it can always be helpful to expand the number of participants and perspectives represented in a study. As we continued working on this project, our research

team expanded the number of people who provided feedback and extended the team by hiring Indigenous language speakers as health promoters at the RWHP. In future work, we encourage technical communicators to increase the number of participants by developing other research projects with Indigenous communities in different contexts. Furthermore, although all authors engaged in dialogue and collaborative analysis of our experiences and datasets, there are limitations to extrapolating findings from a single project. Thus, in future projects, it would be helpful to follow a similar study methodology while working with different Indigenous communities and languages. We are currently working on follow-up projects focused on Indigenous languages not included in this article, including the Mayan language Akateko.

Suggestions for Future Research As researchers continue expanding the findings of this project, it may be useful to test the recommendations provided in this article with additional communities and to expand perspectives to cover content that is not just health related to further enhance and expand impact. Overall, the recommendations shared in this article are just a starting point for considering how social justice projects in technical communication can be combined, localized, and adapted to better serve and represent the continuing diversity of people, languages, and cultures.

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